

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN FRANCISCO BAY REGION

ORDER NO. 89-96
NPDES NO. CA0005657

WASTE DISCHARGE REQUIREMENTS FOR:

PACIFIC GAS AND ELECTRIC COMPANY
POTRERO POWER PLANT
SAN FRANCISCO, SAN FRANCISCO COUNTY

The California Regional Water Quality Control Board, San Francisco Bay Region, (hereinafter Board) finds that:

General Findings

1. Pacific Gas and Electric Company, Potrero Power Plant, (hereinafter discharger) submitted a National Pollutant Discharge Elimination System (NPDES) Permit Application dated April 14, 1988 for reissuance of NPDES Permit No. CA0005657.
2. The discharge of wastewater from this power plant is currently governed by Waste Discharge Requirements, Board Order Nos. 83-51 and 87-101.
3. The discharger produces 210 Megawatt (MW) from one steam-electric generating unit and currently discharges once-through cooling water and low volume wastes containing pollutants into Lower San Francisco Bay, a water of the United States.
4. The report of waste discharge describes the existing discharge as follows:

<u>Discharge Outfall</u>	<u>Contributory Waste Stream</u>	<u>Annual Flow Average mgd</u>
001	A. Once-through Cooling Water Discharge- Unit 3	230
	B. Low Volume Waste Boiler Blowdown	0.0013
	Stormwater Runoff	0.005
003	Intake Screen Wash	0.1

The discharge structure is located on the San Francisco Bay Shore, by Warm Water Cove, north of Islais Creek Channel.

5. The discharger withdraws water from the San Francisco Bay from a shoreline surface water intake structure. Cooling water for this unit passes through bar rack and screen. The design approach and through-screen velocities are as follows:

Intake -Unit 3

Velocities

Approach Screen ft/sec	0.7
Through Screen ft/sec	1.5

6. The discharger cools the condenser by pumping water from the intake through the condenser to the point of discharge. The design capacities of the condenser and single speed pump are as follows:

<u>Unit</u>	<u>Design Condenser Temperature Rise</u>	<u>Unit Pump Design Capacity (gpm)</u>
3	15 F	78,500

7. EPA and the Board have classified this discharge as a major discharge.
8. Boiler chemical cleaning waste, oily sludge, fireside and waterside washes, regeneration waste, floor drains and contaminated stormwater runoff are discharged to an industrial sump and then to the City of San Francisco or are disposed off-site.
9. The Board adopted a revised Water Quality Control Plan for the San Francisco Bay Basin (Basin Plan) on December 17, 1986, and the State Water Resources Control Board (State Board) approved it on May 21, 1987. The provisions of this permit are consistent with the objectives of the Basin Plan.
10. The Basin Plan includes an Effluent Toxicity Control Program based on guidance presented in the Technical Support Document for Water Quality Based Control of Toxics, and implements the national biomonitoring policy established by the EPA. The overall Effluent Toxicity Control Program consists of

four components: 1) an effluent toxicity characterization program; 2) the development of water quality objectives for specific pollutants; 3) system modeling and wasteload allocation; and 4) the derivation of effluent limits.

11. The Board adopted guidelines for conducting the effluent toxicity characterization component of the Effluent Toxicity Control Program on August 19, 1987, and the State Board approved it on April 21, 1988. The effluent toxicity characterization program determines the magnitude and variability of toxicity in effluents. This program consists of two major components including a species sensitivity screening study and an effluent toxicity variability study.
12. The discharger has already conducted the sensitivity screening study and will be conducting the effluent toxicity variability study within the next twelve months.
13. The beneficial uses of the Lower San Francisco Bay and contiguous waters are:
 - a. Water Contact Recreation
 - b. Non-Contact Water Recreation
 - c. Wildlife Habitat
 - d. Preservation of Rare and Endangered Species
 - e. Estuarine Habitat
 - f. Fish Migration
 - g. Industrial Service Supply
 - h. Navigation
 - i. Commercial and Sport Fishing
 - J. Shellfish Harvesting
14. Effluent limitation, and toxic and effluent standards established pursuant to Sections 301, 304, and 307 of the Federal Water Pollution Control Act and amendments thereto are applicable to the discharge.
15. Effluent limitations guidelines requiring the application of the best practicable control technology currently available (BPT) has been promulgated by the EPA for the Steam Electric Power Generating Point Source Category (40 CFR Part 423.12). Effluent limitations of this Order are based on these guidelines, the Basin Plan, other State Plans and policies, and best professional judgement. The limitations are considered to be those attainable by BPT, in the judgement of the Board.
16. The Board has made a best professional judgement that BPT is equivalent to best conventional pollutant control technology (BCT) for the regulation of conventional pollutants for this discharger.
17. The issuance of waste discharge requirements for this discharge is exempt from the provisions of Chapter 3

(commencing with Section 21110) of Division 13 of the Public Resources Code (CEQA) pursuant to Section 13389 of the California Water Code.

18. The Board has notified the discharger and interested agencies and persons of its intent to prescribe waste discharge requirements for this discharge and has provided them with an opportunity for a public hearing and an opportunity for a public hearing and an opportunity to submit their written views and recommendations.
19. The Board, in a public hearing, heard and considered all comments pertaining to the discharge permit.

Findings Related to Thermal Effluent Limitations

20. The Clean Water Act (CWA) requires compliance with State water quality standards for the discharge of thermal effluent. The State Board, on September 18, 1975, amended the Water Quality Control Plan for control of Temperature in the Coastal Interstate Waters and Enclosed Bays and Estuaries of California (Thermal Plan). The Thermal Plan requires existing elevated temperature waste discharges to enclosed bays to comply with limitations necessary to assure protection of beneficial uses.
21. The discharger submitted the results of studies on the thermal effects of the elevated temperature discharge on beneficial uses in 1973. These studies included investigations on the fish and other marine biota in the vicinity of the discharge and showed no detrimental effects on the beneficial uses. These studies were supplemented with additional studies on pumped entrainment mortality as part of the Section 316(b) studies described in Finding 26. No additional receiving water studies were required since discharge temperatures were relatively low and the potential impacts on aquatic resources were minimal.
22. Since the 1973 studies were completed, the discharge from units 1 and 2 has been eliminated. The discharge now consists of the discharge from unit 3.
23. The Board, in 1983, found that the present thermal discharge limitation is sufficient to assure protection of beneficial uses.
24. Although the discharger hasn't made any physical or operational changes to the plant since 1983 (which would increase thermal loading), the Board and the Department of Fish and Game (DF&G) need to be assured that the existing thermal limitation is sufficient to assure protection of beneficial uses because 1) the original studies were conducted in 1973 and 2) the hydrodynamics of the Lower San

b. pH

6.5-8.5

c. The discharge shall meet the following limits of toxicity:

The survival of three-spine stickleback and sanddabs in a 96-hour flow-through bioassay of the effluent shall achieve a median of 90% survival for three consecutive samples and a 90 percentile value of not less than 70% survival for ten consecutive samples.

d. The temperature of the discharge shall not exceed a daily average of 86 F except on days when thermal demusselling treatment occurs. During thermal demusselling, the discharge temperature shall not exceed 100 F for more than four hours or a maximum of 110 F. Thermal demusselling shall not occur more than twice per month for each half condenser (there are two half condensers per unit).

2. Low volume wastes shall not exceed the following:

<u>Constituent</u>	<u>Units</u>	<u>30-Day Average</u>	<u>Maximum Daily</u>
Total Suspended Solids	mg/l	30	100
Oil and Grease	mg/l	10	20

3. The quantity of pollutants discharged from low volume wastes shall not exceed the quantity calculated from the flow of the waste sources times the concentration in mg/l in B.2.

C. Receiving Water Limitations

1. The discharge shall not cause the following conditions to exist in waters of the State at any place:

- Floating, suspended or deposited macroscopic particulate matter or foam;
- Bottom deposits or aquatic growths;
- Alteration of turbidity or apparent color beyond present natural background levels;
- Visible, floating, suspended or deposited oil or other products of petroleum origin, and

- e. Toxic or other deleterious substances to be present in concentrations or quantities which will cause deleterious effects on aquatic biota, wildlife, or waterfowl or render any of these unfit for human consumption either at levels created in the receiving waters or as a result of biological concentration.
2. The discharge shall not cause the following limits to be exceeded in water of the State at any place within one foot of the water surface:
- a. Dissolved oxygen: 5.0 mg/l minimum. The median dissolved oxygen concentration for any three consecutive months shall not be less than 80 percent of the dissolved oxygen content at saturation.
 - b. Dissolved sulfide: 0.1 mg/l maximum
 - c. pH The pH shall not be depressed below 6.5 nor raised above 8.5, nor caused to vary from normal ambient pH levels by more than 0.5 units.
 - d. Un-ionized Ammonia (as N) 0.025 mg/l Annual Median
0.16 mg/l Maximum at any time.
3. The discharge shall not cause a violation of any applicable water quality standard for receiving waters adopted by the Board or State Water Resources Control Board as required by the Clean Water Act and regulations adopted thereunder. If more stringent applicable water quality standards are promulgated or approved pursuant to Section 303 of the Clean Water Act, or amendments thereto, the Board will revise and modify this Order in accordance with such standards.

D. Provisions

1. The discharger shall comply with the attached Self-Monitoring Program as adopted by the Board and as may be amended by the Board pursuant to EPA regulations 40 CFR 122.62, 122.63, and 124.5.

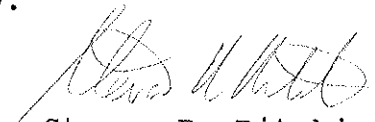
2. The discharger shall comply with the limitations, prohibitions, and other provisions of this order immediately upon its adoption by the Board except as noted below.
3. The discharger shall perform a thermal effects study to determine the adverse impacts, if any, on the fish and shellfish in the discharge area. The study shall focus on possible thermal effects on the local Pacific herring population. The study shall be twelve months in duration to account for seasonal aspects. The discharger shall submit a study plan acceptable to the Executive Officer by August 15, 1989. The discharger shall submit a final report to the Executive Officer by February 28, 1991. If the study results show that the discharge does not protect beneficial uses as required by Objective 4.A.1. of the California Thermal Plan, then the Board may review and modify temperature limitations in Effluent Limitation B.1.d. prior to the permit expiration date.
4. The discharger shall develop and submit a Best Management Practices (BMP) program to the Executive Officer by December 21, 1989. The BMP program shall be consistent with the EPA regulations 40 CFR 125, Subpart K and the general guidance contained in the "NPDES Best Management Guidance Document", EPA Report No. 600/9-79-045, December 1979 (revised June 1981). A BMP program acceptable to the Executive Officer shall be implemented by April 1990.
5. The discharger shall comply with all items of the attached "Standard Provisions and Reporting Requirements" dated December 1986.
6. The discharger shall review and update by November 1 each year its contingency plan as required by Board Resolution No. 74-10. The discharge of pollutants in violation of this Order where the discharger has failed to develop and/or implement a contingency plan will be basis for considering such discharge a willful and negligent violation of this Order pursuant to section 13387 of the California Water Code.
7. This permit shall be modified or alternatively revoked and reissued to comply with any applicable effluent standard or limitation issued or approved under Sections 301 (b)(2)(c), and (d), 303, 304(b) (2), and 307(a)(2) of the Clean Water Act, if the effluent standard or limitation so issued or approved:
 - (a) Contains different conditions or is otherwise more stringent than any effluent limitation in the permit; or

(b) Controls any pollutant not limited in the permit.

The permit as modified or reissued under this paragraph shall also contain any other requirement of the Act then applicable.

8. All applications, reports, or information submitted to the Board shall be signed and certified pursuant to EPA regulations (40 CFR 122.41K).
9. Pursuant to EPA regulations [40CFR 122.42(a)], the discharger must notify the Board as soon as it knows or has reason to believe (1) that they have begun or expect to begin, use or manufacture of a pollutant not reported in the permit application, or (2) a discharge of toxic pollutants not limited by this permit has occurred, or will occur, in concentrations that exceed the specified limits included in 40 CFR 122.42 (a).
10. This Order expires on June 21, 1994 and the discharger must file a Report of Waste Discharge in accordance with Title 23, California Administrative Code, not later than 180 days in advance of such date as application for issuance of new waste discharge requirements.
11. Pursuant to EPA regulations 40 CFR 122.4, 122.62, and 124.5, this permit may be modified prior to the expiration date to include effluent limitations for toxics constituents determined to be present in significant amounts in the discharge through a more comprehensive monitoring program included as part of this Order.
12. This Order shall serve as a National Pollutant Discharge Elimination System permit pursuant to Section 402 of the Federal Water Pollution Control Act or amendments thereto, and shall take effect at the end of 10 days from date of adoption provided the Regional Administrator, Environmental Protection Agency, has no objections.

I, Steven R Ritchie, Executive Officer, do hereby certify the foregoing is a full, true, and correct copy of an Order adopted by the California Regional Water Quality Control Board, San Francisco Bay Region, on June 21, 1989.


Steven R. Ritchie
Executive Officer

Attachments:

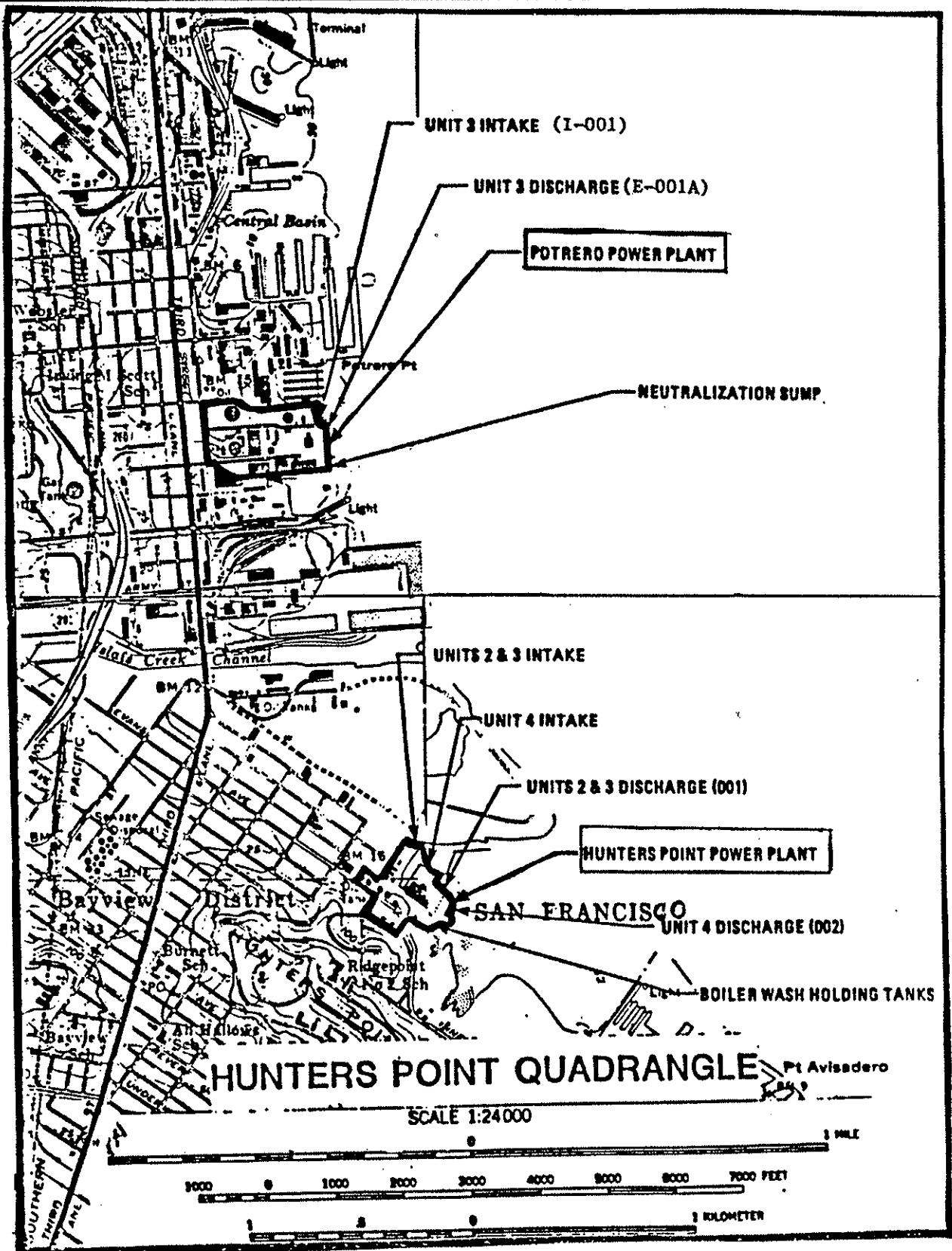
Location Map

Flow Schematic

Standard Provisions and Reporting Requirements dated December 1986

Resolution No. 74-10

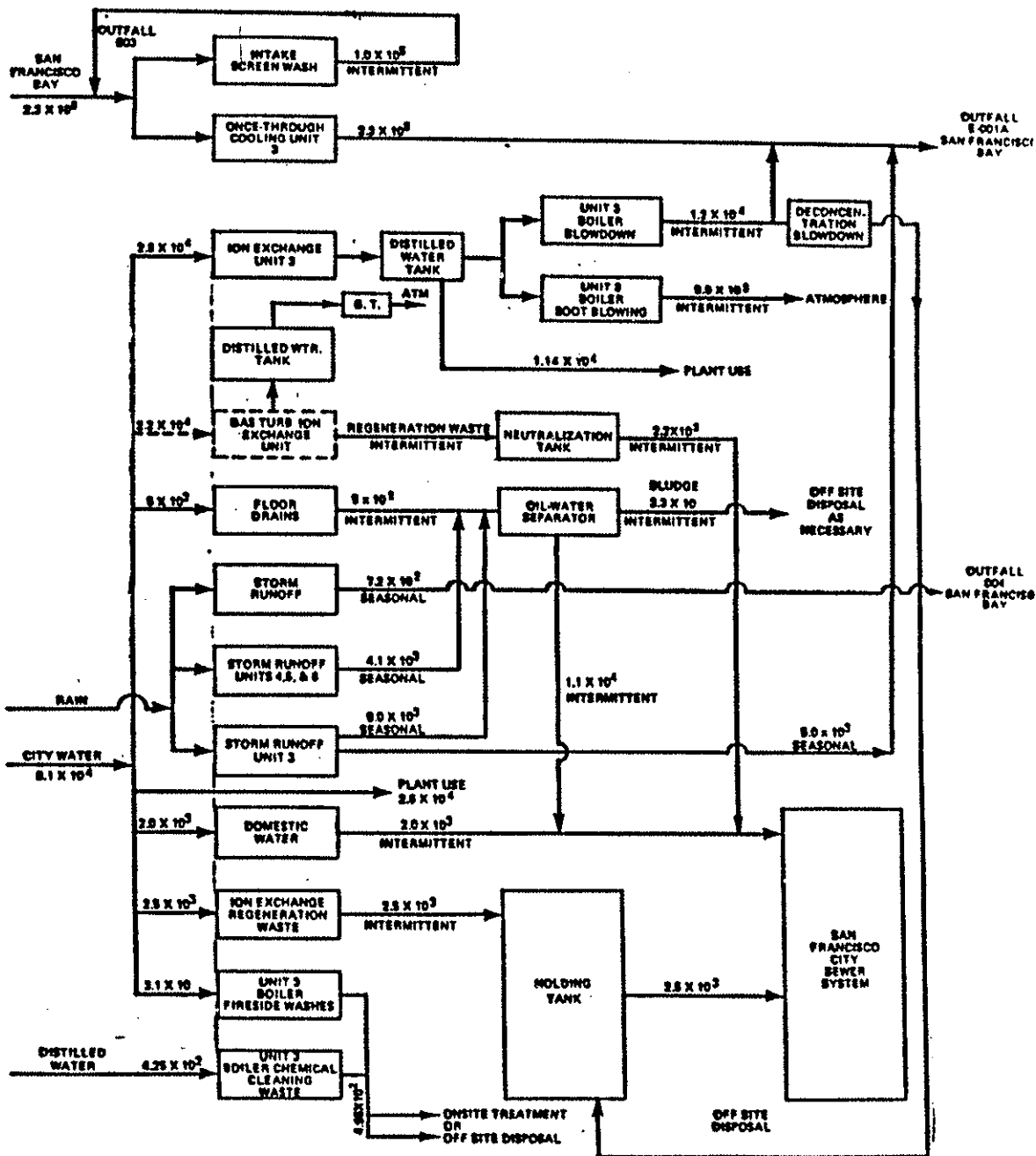
Self-Monitoring Program



STATE OF CALIFORNIA
REGIONAL WATER QUALITY CONTROL BOARD
SAN FRANCISCO BAY REGION

LOCATION MAP
OF
HUNTERS POINT AND POTRERO
POWER PLANTS

DRAWN BY: P64E DATE: 1988 DRWG. NO.



ALL FLOWS ARE LISTED IN GALLONS PER DAY

STATE OF CALIFORNIA
REGIONAL WATER QUALITY CONTROL BOARD
SAN FRANCISCO BAY REGION

POTRERO POWER PLANT
WATER FLOW SCHEMATIC

DRAWN BY: RGE DATE: 1988 DRWG. NO.

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN FRANCISCO BAY REGION

SELF-MONITORING PROGRAM
FOR

PACIFIC GAS AND ELECTRIC COMPANY
POTRERO POWER PLANT, SAN FRANCISCO
CITY AND COUNTY OF SAN FRANCISCO

NPDES NO. CA0005657

ORDER No. 89-96

CONSISTS OF

PART A (dated December 1986)

AND

PART B

SELF-MONITORING PROGRAM

PART B

DESCRIPTION OF SAMPLING STATIONS
AND
SCHEDULE OF SAMPLING, ANALYSIS & OBSERVATIONS

I. Sampling Station Location/Description

A. Influent

<u>Station</u>	<u>Description</u>
I-001	At any point in the influent stream and upstream of any treatment where representative samples of the influent can be obtained.

B. Effluent

<u>Station</u>	<u>Description</u>
E-001A	At any point in the outfall for Unit 3 from which once-through cooling and low volume wastes are discharged, between the point of discharge to San Francisco Bay and the point at which all pollutants tributary to that outfall are present.
E-001B	At any point in the low volume waste stream prior to mixing with once-through cooling water from Units 3.
E-004	At any point in the outfall from each of the 3 storm drains from which stormwater runoff is discharged to San Francisco Bay.

II. Schedule of Sampling, Analysis & Observations

- A. The schedule of sampling and analysis shall be that given in Table 1 (attached).
- B. Sample collection, storage, and analysis shall be performed according to the latest 40 CFR Part 136 or other methods approved and specified by the Board.

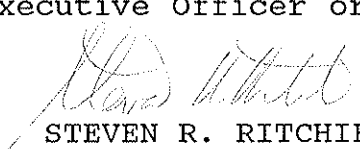
III. Miscellaneous Reporting

The discharger shall retain and submit (when required) the following information concerning the monitoring program for metallic pollutants.

- a. Description of sample stations, times and procedures.
- b. Description of sample containers, storage, and holding time prior to analysis.
- c. Quality assurance procedures together with any test results for replicate samples, sample blanks, and any quality assurance tests, and the recovery percentages for the internal and surrogate standards.

I, Steve R. Ritchie, Executive Officer, do hereby certify that the foregoing Self-Monitoring Program:

- 1. Has been developed in accordance with the procedure set forth in this Regional Board's Resolution No. 73-16 in order to obtain data and document compliance with waste discharge requirements established by this Board.
- 2. Is effective on the date shown below.
- 3. May be reviewed at any time subsequent to the effective date upon written notice from the Executive Officer or request from the discharger and revisions may be ordered by the Executive Officer or Regional Board.


STEVEN R. RITCHIE
Executive Officer

EFFECTIVE DATE 6/21/89

Attachments:
Table 1

TABLE ISCHEDULE OF SAMPLING, MEASUREMENTS, AND ANALYSIS

<u>Station</u>	<u>Constituent</u>	<u>Units</u>	<u>Type of Sample</u>	<u>Frequency of Analysis</u>
I-001	Temperature	F	-	continuous
	Total Suspended Solids	mg/l lbs/day	24-hour-composite	monthly
	pH	pH units	grab	weekly
	Turbidity	Jackson Turbidity Units	grab	monthly
	Dissolved Oxygen	mg/l & % Saturation	grab	monthly
	Arsenic	ug/l lbs/day	24-hour composite	monthly
	Cadmium	ug/l lbs/day	24-hour composite	monthly
	Chromium	ug/l lbs/day	24-hour composite	monthly
	Copper	ug/l lbs/day	24-hour composite	monthly
	Silver	ug/l lbs/day	24-hour composite	monthly
	Lead	ug/l lbs/day	24-hour composite	monthly
	Mercury	ug/l lbs/day	24-hour composite	monthly
	Nickel	ug/l lbs/day	24-hour composite	monthly
	Zinc	ug/l lbs/day	24-hour composite	monthly
	Thallium	ug/l lbs/day	24-hour composite	monthly

<u>Station</u>	<u>Constituent</u>	<u>Units</u>	<u>Type of Sample</u>	<u>Frequency of Analysis</u>
E-001A	Temperature	F	-	continuous
	Flow	MGD	from pump operating data	daily
	pH	pH units	Grab	weekly
	Chlorine Residual	mg/l	Grab	daily, when treating
	96-hour fish bioassay	% survival	(1)	monthly
	Arsenic	ug/l lbs/day	24-hour composite	monthly
	Cadmium	ug/l lbs/day	24-hour composite	monthly
	Chromium	ug/l lbs/day	24-hour composite	monthly
	Copper	ug/l lbs/day	24-hour composite	monthly
	Lead	ug/l lbs/day	24-hour composite	monthly
	Mercury	ug/l lbs/day	24-hour composite	monthly
	Nickel	ug/l lbs/day	24-hour composite	monthly
	Zinc	ug/l lbs/day	24-hour composite	monthly
	Thallium	ug/l	24-hour composite	monthly
	All Applicable Standard Observations			monthly

<u>Station</u>	<u>Constituent</u>	<u>Units</u>	<u>Type of Sample</u>	<u>Frequency of Analysis</u>
E-001B	Total Suspended Solids	mg/l	grab	monthly
	Oil & Grease	mg/l	grab	monthly
	Flow	mgd	-	monthly
E-004	Oil and Grease	mg/l	grab	monthly
	TOC	mg/l	grab	monthly

LEGEND

FREQUENCY OF ANALYSIS

Monthly= once each month

Daily= once each day

Continuous= average of at least eight measurements per day
collected at three hour intervals

FOOTNOTE

- 1) The bioassay test shall be a flow-through test using two test fish species (stickleback and sandabs).
- 2) Stormwater discharges shall be sampled once each month at each discharge location only if a discharge occurs.